# Coax/Trap TI-99/4A Computer Program in BASIC

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This BASIC program was written to calculate the turns required for a coaxial-cable antenna trap. With data input, the program will supply the user with L, C, $X_L$ and $X_C$ information. The program itself is based on information given in two articles. The first was written by Robert C. Sommer, N4UU, and appeared in the December 1984 issue of *QST*, p 37 (Optimizing Coaxial-Cable Traps); the other was, "A Coax-Antenna Trap Program for the Timex/Sinclair 1000," by Andy S. Griffith, W4ULD, and appeared in the August 1984 issue of *QEX*.

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100 REM  JOHN DAVIS WB4KOH KOH SOFTWARE CHARLOTTE NC
110 CALL SCREEN(6)
120 CALL CLEAR
130 FOR F=1 TO 12
140 CALL COLOR(F,16,6)
150 NEXT F
160 PRINT "This program will calculate the turns required for a    coax antenna
trap.          "
170 PRINT "It also gives L, C, XL & XC.From 'QEX' Aug. 1984 PP 8-11Org. by Griff
ith. W4ULD.       "
180 PRINT "Also see 'QST' Dec. 1984    page 37."
190 PRINT
200 PRINT "TI basic by J. Davis, WB4KOH       Dec. 5, 1984          "
210 INPUT "Press <ENTER> to go on. ":XX$
220 CALL CLEAR
230 REM  2939-4 WINTERFIELD PLACE CHARLOTTE NC 28205
240 PRINT "Cable and coil form data.     "
250 PRINT "Calculations include 1 inch tail inside coil.           ----------
----------"
260 PRINT "cable    dia. cap/ft power"
270 PRINT "RG-174  0.105  30.8  <500   RG-58/U 0.200  28.5  1 KW   RG-59   0.242
  21.0  1.5 KW  "
280 PRINT " MHz.  min174opt min 58 opt  3.55  1.65 2.48 2.43 3.65   3.95  1.57 2
.35 2.32 3.49"
290 PRINT " 7.15  1.23 1.86 1.78 2.70  10.125 1.07 1.58 1.52 2.32  14.175 0.90 1
.37 1.30 2.00"
300 PRINT "21.225 0.75 1.14 1.08 1.66  28.85  0.64 1.00 0.94 1.45  ----------
----------"
310 INPUT "Enter coax dia. (In)? ":CD
320 IF CD<=0 THEN 310
330 INPUT "Coax cap./ft.   (Pf)? ":CC
340 IF CC<1 THEN 330
350 INPUT "Coil form dia.  (In)? ":D
360 IF D<.1 THEN 350
370 INPUT "Operting Freq. (MHz)? ":F
380 IF F<.1 THEN 370
390 PRINT
400 A=D+CD
410 FOR N=1 TO 100
420 L=((A^2)*(N^2))/((18*A)+(40*N*CD))
430 PIA=3.14159
440 XL=2*PIA*F*L
450 C=(((A*PIA*N)+1)*CC)/12
460 XC=10^6/(2*PIA*F*C)
470 IF XL>=XC THEN 490
480 NEXT N
490 X=(N-1)*10
500 Y=(N+1)*10
510 FOR M=X TO Y
520 N1=M/10
530 L1=((A^2)*(N1^2))/((18*A)+(40*CD*N))
540 XL1=2*PIA*F*L1
550 C1=(((A*PIA*N1)+1)*CC)/12
560 XC1=10^6/(2*PIA*F*C1)
570 IF XL1>=XC1 THEN 590
580 NEXT M
590 PRINT "Xl (ohms) =";XL1
600 PRINT "Xc (ohms) =";XC1
610 PRINT "L  (uH.)  =";L1
620 PRINT "C  (pF.)  =";C1
630 PRINT "Turns no. =";N1
640 LIN=(PIA*A*N1)+1
650 PRINT "Tl legnth =";LIN
660 PRINT
670 INPUT "Press <R> to Redo                <E> to Exit?  ":ZZ$
680 IF ZZ$="R" THEN 220
690 IF ZZ$="E" THEN 710
700 GOTO 670
710 CALL CLEAR
720 END
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